

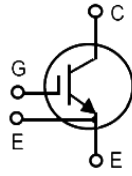
SG100T60S SG100T60DS

Discrete IGBTs

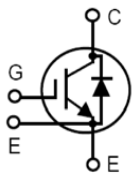
Dimensions SOT-227(ISOTOP)



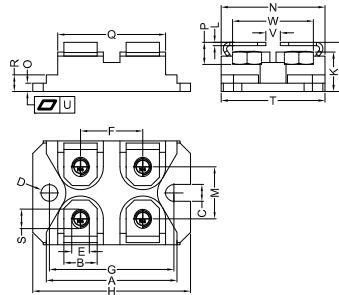
SG100T60S



SG100T60DS



G=Gate
C=Collector
E=Emitter



Dim.	Millimeter		Dim.	Millimeter	
	Min.	Max.		Min.	Max.
A	31.30	31.62	M	12.20	14.00
B	7.80	8.20	N	25.15	25.62
C	4.09	4.29	O	1.98	2.13
D	4.09	4.29	P	4.15	4.62
E	4.09	4.29	Q	25.90	26.30
F	14.91	15.11	R	3.94	4.42
G	30.12	30.30	S	4.45	4.85
H	38.20	38.56	T	24.59	25.07
J	12.30	12.90	U	0.05	0.10
K	8.92	9.60	V	3.00	4.80
L	0.76	0.84	W	19.81	21.08

T_C = 25°C, unless otherwise specified

Symbol	Conditions	Values	Units
IGBT			
V _{CES}		600	V
I _C	T _C = 25(100)°C	200(100)	A
I _{CRM}	T _C = 25°C, t _P = 1ms	200	A
V _{GES}		±20	V
T _{Vj}		-40...+175	°C
Inverse			
Diode I _F = -I _C	T _C = 25(100)°C	200(100)	A
I _{FRM}	T _C = 25°C, t _P = 1ms	200	A
I _{FSM}	t _P = 10ms; sin180° ; T _j = 25°C	200	A
V _{RRM}		600	V
Module			
I _{t(RMS)}	T _{terminal} = 100°C	100	A
T _{stg}		-40~125	°C
V _{Isol}	AC, 1min	4000	V

Features

- Trench Gate Field Stop IGBT technology
- Standard SOT-227 package style
- Low switching losses
- Switching frequency up to 30kHz
- Square RBSOA, no latch up
- High short circuit capability
- Positive temperature coefficient for easy paralleling
- MOS input, voltage controlled
- Soft switching diode Technology
- Package with copper baseplate
- Isolation voltage 4000 V

Application

- Inverter welding Machines
- UPS
- AC inverter Drives

Advantages

- Space and weight savings
- Reduced protection circuits



Sirectifier®

SG100T60S SG100T60DS

Discrete IGBTs

Characteristics

$T_C = 25^{\circ}\text{C}$, unless otherwise specified

Symbol	Conditions	min.	typ.	max.	Units
IGBT					
$V_{GE(th)}$	$V_{CE} = 20\text{ V}$, $I_C = 3\text{mA}$	5.0	5.5	6.5	V
I_{CES}	$V_{GE} = 0$; $V_{CE} = V_{CES}$; $T_J = 25^{\circ}\text{C}$			0.20	mA
$V_{CE(TO)}$	$T_J = 25^{\circ}\text{C}$		0.8	0.9	V
r_{CE}	$V_{GE} = 15\text{V}$, $T_J = 25(150)^{\circ}\text{C}$		3.2(4.5)	3.6(4.9)	$\text{m}\Omega$
$V_{CE(sat)}$	$I_C = 100\text{A}$; $V_{GE} = 15\text{V}$; chip level		2.05	2.50	V
C_{ies}	under following conditions		11.00		nF
C_{oes}	$V_{GE} = 0$, $V_{CE} = 25\text{V}$, $f = 1\text{MHz}$		1.00		
C_{res}			0.15		
L_{CE}				30	nH
$R_{CC'+EE'}$	res., terminal-chip $T_C = 25(125)^{\circ}\text{C}$		0.65(1.09)		$\text{m}\Omega$
$t_{d(on)}$	under following conditions: $V_{CC} = 300\text{V}$,		105		ns
t_r	$I_C = 100\text{A}$		35		ns
$t_{d(off)}$	$R_{Gon} = R_{Goff}$; 33 Ω ; $T_J = 150^{\circ}\text{C}$		270		ns
t_f	$V_{GE} = \pm 15\text{V}$		48		ns
$E_{on}/E_{off}/E_{ts}$			1.00/1.24/2.24		mJ
Inverse Diode	under following conditions: $I_F = 100\text{A}$;				
$V_F = V_{EC}$	$V_{GE} = 0\text{V}$; $T_J = 25^{\circ}\text{C}$		2.00		V
$V_{(FO)}$	$T_J = 25(125)^{\circ}\text{C}$		1.3(0.95)	1.5(1.2)	V
r_F	$T_J = 25(125)^{\circ}\text{C}$		18(25)	22(28)	$\text{m}\Omega$
I_{RM}	$I_F = 100\text{A}$; $T_J = 125^{\circ}\text{C}$		5.6		A
Q_{rr}	$di/dt = 100\text{A}/\mu\text{s}$		0.15		μC
E_{rr}	$V_{GE} = \pm 15\text{V}$		0.9		mJ
Thermal Characteristics					
$R_{th(j-c)}$	per IGBT			0.38	K/W
$R_{th(j-c)D}$	per Inverse Diode			0.92	K/W
$R_{th(c-s)}$	per module			0.27	K/W
Mechanical Data					
M_s	to heatsink M4		1.5		Nm
M_t	to terminals M4		1.5		Nm
Weight	typical		30		g

Sirectifier®

SG100T60S SG100T60DS

Discrete IGBTs

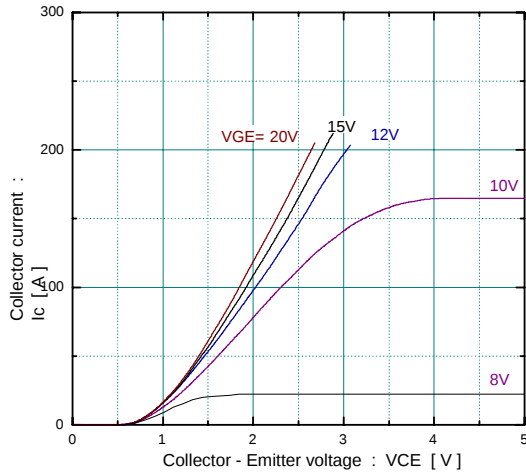


Fig.1 Collector current vs. Collector-Emittter voltage
 $T_j = 25^\circ\text{C}$ (typ.)

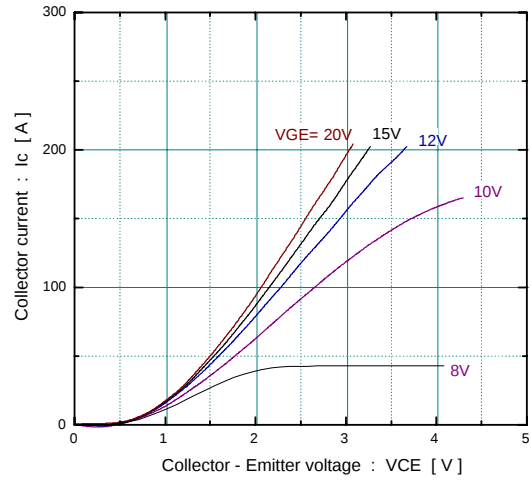


Fig.2 Collector current vs. Collector-Emittter voltage
 $T_j = 125^\circ\text{C}$ (typ.)

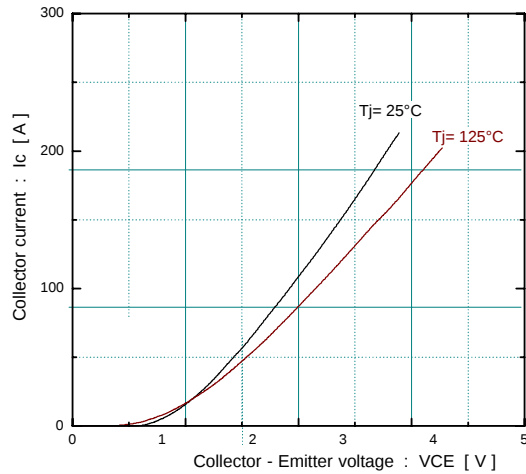


Fig.3 Collector current vs. Collector-Emittter voltage
 $V_{GE} = 15V$ (typ.)

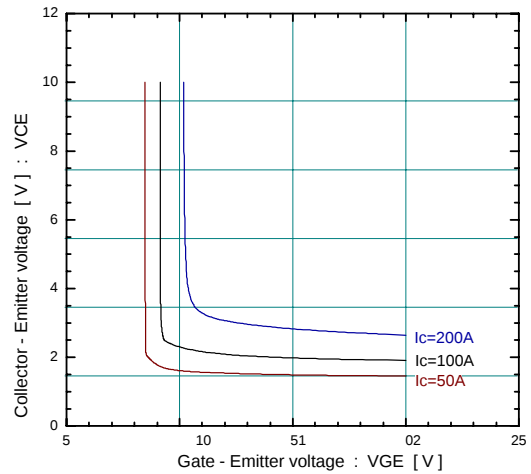


Fig.4 Collector-Emittter voltage vs. Gate-Emittter voltage
 $T_j = 25^\circ\text{C}$ (typ.)

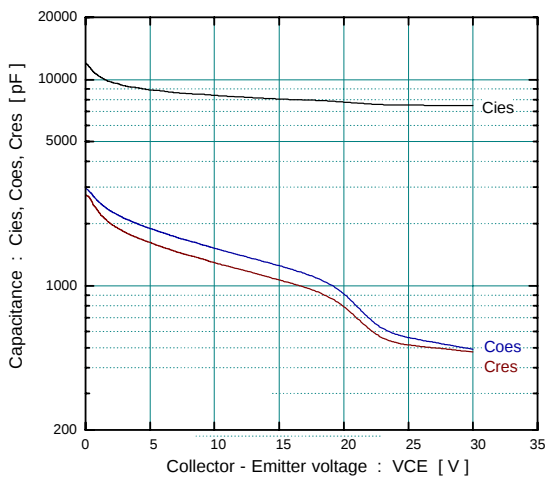


Fig.5 Capacitance vs. Collector-Emittter voltage
(typ.) $V_{GE} = 0V, f = 1\text{MHz}, T_j = 25^\circ\text{C}$

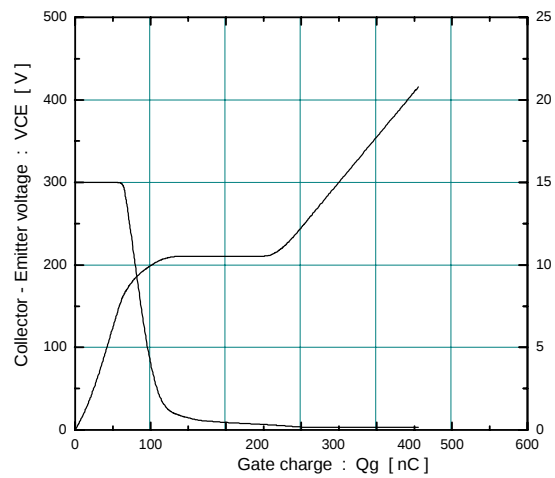


Fig.6 Dynamic Gate charge (typ.)
 $V_{cc} = 300V, I_c = 100A, T_j = 25^\circ\text{C}$

Sirectifier®

SG100T60S SG100T60DS

Discrete IGBTs

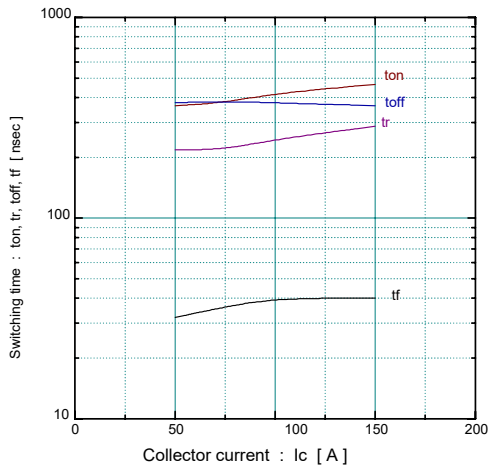


Fig.7 Switching time vs. Collector current (typ.)
Vcc=300V, VGE=±15V, Rg=33Ω, Tj= 25°C

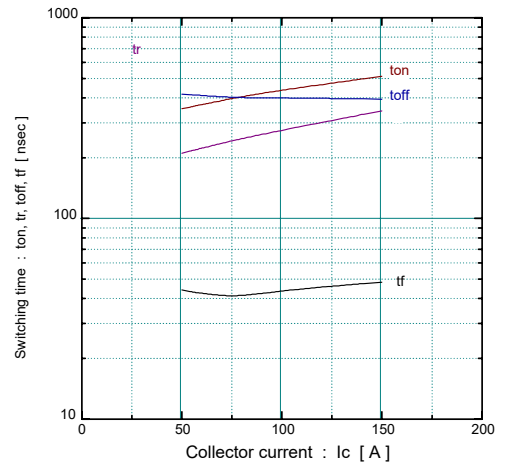


Fig.8 Switching time vs. Collector current (typ.)
Vcc=300V, VGE=±15V, Rg= 33Ω, Tj= 125°C

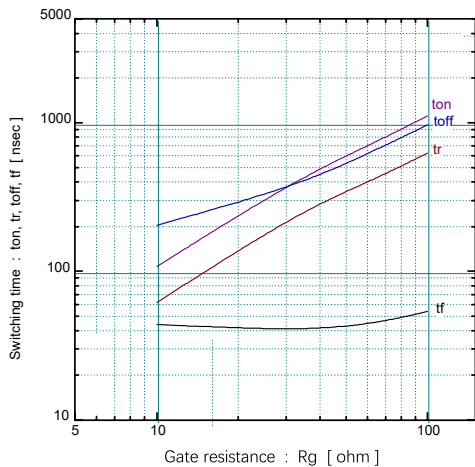


Fig.9 Switching time vs. Gate resistance (typ.)
Vcc=300V, Ic=100A, VGE=±15V, Tj= 25°C

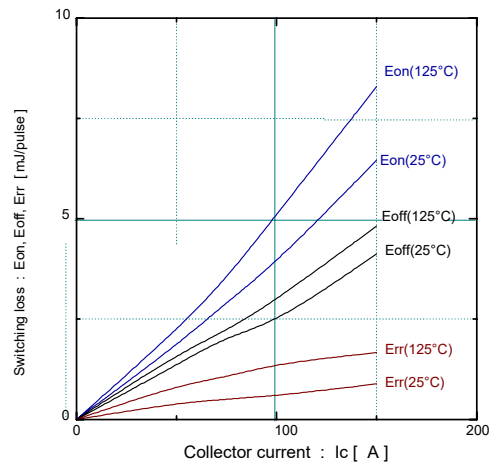


Fig.10 Switching loss vs. Collector current (typ.)
Vcc=300V, VGE=±15V, Rg=33Ω

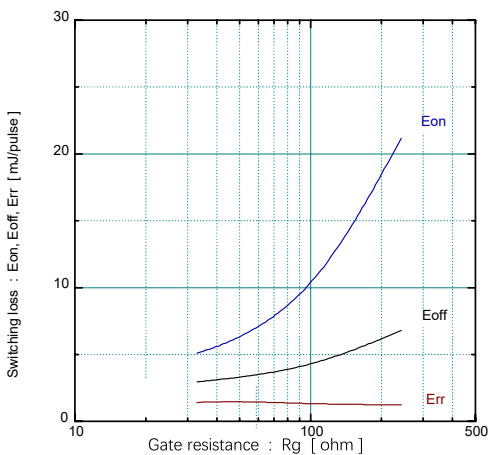


Fig.11 Switching loss vs. Gate resistance (typ.)
Vcc=300V, Ic=100A, VGE=±15V, Tj= 125°C

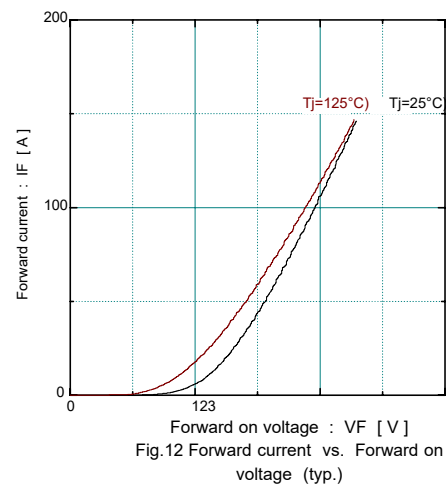
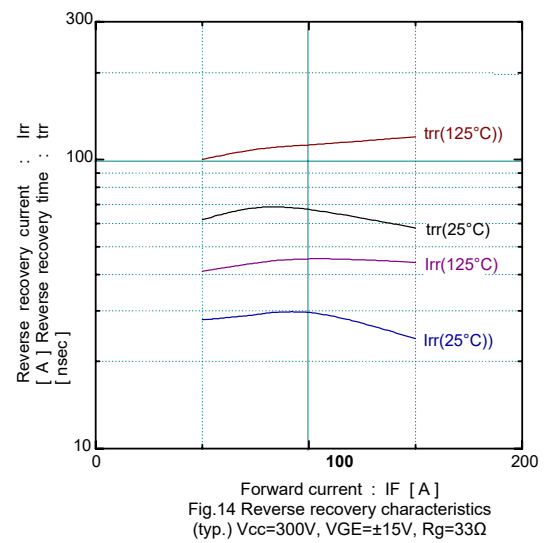
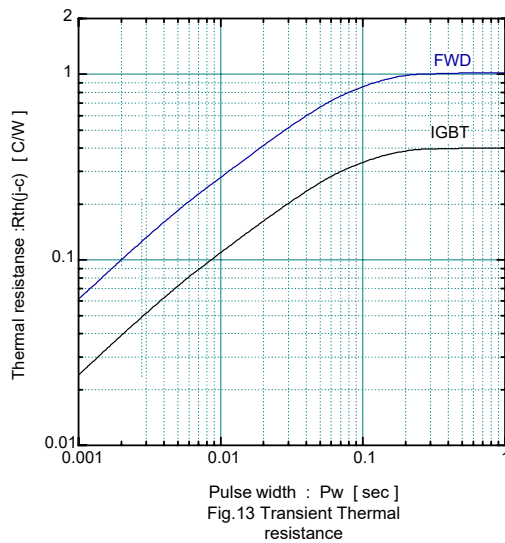


Fig.12 Forward current vs. Forward on voltage (typ.)

Sirectifier®

SG100T60S SG100T60DS

Discrete IGBTs



ORDERING INFORMATION

Part Number	Package	Shipping	Marking Code
SG100T60S	SOT-227	10pcs / Tube	SG100T60S
SG100T60DS	SOT-227	10pcs / Tube	SG100T60DS